

Swaddling Blanket

Cross-Reference to Related Application

[0001] This application claims the benefit of U.S. provisional patent application serial number 60/399,679, filed by the same inventor on July 31, 2002, now pending.

Background

[0002] The swaddling of infants has been practiced since antiquity by people around the world. Swaddling protects an infant from the surrounding environment, allows a caregiver to handle and carry an infant more easily, and has long been thought to comfort and quiet an infant.

[0003] This is especially true of "colicky" infants, those who cry at least three hours a day, three days a week, for at least three weeks in a row. Although no specific cause for colic has been identified and many potential remedies have been offered, research has shown that effective swaddling often has a calming effect on crying infants. Research also shows that a swaddled infant tends to be more willing to sleep on her back, which significantly reduces her vulnerability to Sudden Infant Death Syndrome.

[0004] The key to effective swaddling appears to reside in a combination of factors. Loosely-swaddled infants tend to be more restless than snugly-swaddled infants, but overly tight swaddling may inhibit breathing. An infant is comforted by having her arms held snugly against her midsection and by having even pressure applied around her torso. Limitations on leg movement help also, but complete immobilization of the legs may promote hip dysplasia. Any pressure against the head is counterproductive. Too thin a wrap may provide inadequate restraint, but too heavy a wrap may overheat the infant.

[0005] It is thought that gentle, even pressure around an infant's torso and immobilization of her limbs may simulate the pre-birth environment. Additionally, or alternatively, immobilization of the limbs may keep an infant from startling herself awake by reflexively flailing her limbs in her sleep and striking nearby objects. Pressure against the head is thought to awaken an infant by stimulating the "rooting" response, where the infant reflexively seeks a nipple.

[0006] An ideal swaddling implement would therefore provide a means for immobilizing an infant's arms while placing gentle, even pressure on her torso; would restrict leg movement without excessive pressure; and would leave the infant's head unencumbered. In addition, the implement could be made of light fabric so that the infant would not overheat. The implement would be easy to use, allowing a quick, snug wrap without complex folding and tucking.

[0007] Unfortunately, presently-available swaddling implements do not provide all of these features. Few people know how to securely and properly wrap an infant in a conventional blanket, and fewer still have the inclination to learn. The traditional "colic band," a fabric strip that is wrapped around an infant's midsection, may provide some relief but does not properly contain the infant's arms and legs. Other available swaddling implements may be too loose to provide more than insulation, or too may be tight around the legs, or may have a hood that triggers the rooting response.

Summary

[0008] The present invention remedies the defects of known swaddling implements, providing an easy-to-use swaddling blanket that immobilizes an infant's arms while placing gentle, even pressure on her torso, restricting leg movement without excessive pressure, and leaving the infant's head unencumbered.

[0009] A preferred embodiment of the present invention has a back panel, a leg pouch, two arm restraints, and two blanket arms, and is made from any of a variety of

fabrics. The back panel is both wide and long enough to support an infant from her neck to her feet.

[0010] The leg pouch is formed from a roughly rectangular piece of fabric that is sewn to the back panel along three adjacent edges, with the bottom edge of the leg pouch sewn to the bottom edge of the back panel and the top edge of the leg pouch open. Each arm restraint is a tapered flap attached to the back panel with a seam that is beneath and parallel to an infant's arms when she is laid on her back on the back panel. Each arm restraint is positioned so that it may be wrapped inward around the adjacent arm.

[0011] In this embodiment, each blanket arm is a side extension of the back panel and tapers to a broadly-rounded point. The back panel and the blanket arms may form a single, continuous piece of material, or the blanket arms may be attached to the sides of the back panel. One blanket arm is just long enough to wrap once over an infant and be tucked partially beneath the infant. The other blanket arm extends from the opposite side of the back panel and is long enough to wrap around the infant more than once. The taper of each blanket arm is such that when both blanket arms are wrapped around the infant, most of the blanket's bulk and pressure surround the infant's torso.

[0012] To swaddle an infant with the present invention, the infant is placed on her back on the back panel, with her legs in the leg pouch and her shoulders just below the top edge of the back panel. Her arms are placed along her sides. An arm restraint is wrapped around each arm from the outside of each arm, first passing over an arm, then inward to be tucked under the arm. The shortest of the two blanket arms is wrapped over and across the infant and its tapered end is tucked under the armpit on the side of the longest blanket arm. The longest blanket arm is then wrapped snugly and repeatedly around the infant in the opposite direction.

[0013] When an infant is swaddled in this manner, her legs are contained without being immobilized and she is comforted by having her arms and torso snugly wrapped. Nothing contacts her head to provoke a rooting response. The blanket material may be light, so that she does not overheat, or it may provide insulation for

colder weather. Unlike a conventional blanket, the arm restraints and tapered blanket arms of the present invention allow a caregiver to quickly and securely wrap an infant with the exact amount of pressure desired, without having the swaddling unravel when the infant moves.

[0014] Some of the benefits of the present invention may be obtained with a simplified embodiment consisting only of the back panel and tapered long blanket arm, which may form a single, continuous sheet of material. The dimensions of the back panel and the taper of the long blanket arm allow a more complete wrap and better pressure distribution than does the traditional colic band.

[0015] However, addition of a leg pouch protects the infant's feet, simplifies positioning of the infant, and improves containment of the infant's legs. Addition of the arm restraints allows a caregiver to quickly secure an infant's arms close and parallel to the infant's torso. Addition of the short blanket arm allows a caregiver to quickly secure the top edge of the leg pouch and the infant so that the long blanket arm may be easily and carefully wrapped to obtain exactly the desired pressure distribution.

[0016] All of these features and advantages of the present invention, and more, are illustrated below in the drawings and detailed description that follows.

Brief Description of the Drawings

[0017] Fig. 1 shows a preferred embodiment of the present invention.

[0018] Fig. 2A shows the embodiment of Fig. 1 with an infant whose legs are in the leg pouch.

[0019] Fig. 2B shows the embodiment of Fig. 1 with arm restraints wrapped around an infant's arms.

[0020] Fig. 2C shows the embodiment of Fig.1 with a short blanket arm wrapped around an infant's torso and tucked beneath an armpit.

[0021] Fig. 2D shows the embodiment of Fig.1 with a long blanket arm wrapped repeatedly around an infant.

[0022] Fig. 3 shows an alternate embodiment of the present invention with an extended leg pouch and a hook-and-loop attachment patch.

[0023] Fig. 4 shows an alternate embodiment of the present invention with a leg pouch divided to accommodate a car seat strap.

[0024] Fig. 5 shows an alternate embodiment of the present invention with a single large arm restraint pouch.

[0025] Fig. 6 shows an alternate embodiment of the present invention with a divided arm restraint band.

[0026] Fig. 7 shows an alternate embodiment of the present invention with two narrow arm restraint pouches.

[0027] Fig. 8 shows an alternate embodiment of the present invention with two wide arm restraint pouches.

Detailed Description

[0028] Fig.1 shows a preferred embodiment of the present invention having a back panel **100**, a leg pouch **110**, a first arm restraint **120**, a second arm restraint **125**, a short blanket arm **130**, and a long blanket arm **135**. In this embodiment the back panel **100** is approximately as long and wide as the combined torso and legs of a typical infant. In this preferred embodiment, the back panel **100** measures approximately 60

cm by 25 cm. However, the back panel **100** and other parts of the invention can be scaled to fit a person of any size.

[0029] The parts of the present invention are made from sheet material, usually fabric. Some fabrics used are cotton flannel, SPANDEX[®], polyester, cotton/polyester blend, ribbed cotton, elastic cotton, cotton waffle, viscose georgette, polyester georgette, rayon, satin, cotton voile, terry voile, cotton crepe, rayon crepe, shantoon, flex, linen, poplin, cambric, sheeting, denim, silk denim, knits, cotton check, cotton crepe check, silk, terry cloth, and cotton interwoven with sterling silver thread. Many other fabrics known in the art may be used instead or in addition, depending on the desired characteristics such as elasticity, warmth, weight, breathability, stain resistance, absence of allergens, visual appeal, and other factors. The present invention may be made of a single material or parts may be made of different materials. Flexible, non-fabric materials may also be used to provide special characteristics.

[0030] A short blanket arm **130** extends from a first side **102** of the back panel **100**. The short blanket arm **130** tapers away from the back panel **100** to a first end point **133** and is about 40 cm long, just long enough to wrap once over an infant with enough excess length to tuck into the infant's armpit. The long blanket arm **135** extends from a second side **104** of the back panel **100**. The long blanket arm **135** tapers away from the back panel **100** to a second end point **138** and is about 100 cm long, enough to wrap around the infant more than once, preferably at least twice.

[0031] The blanket arms **130**, **135** may be separate pieces sewn, bonded, electrically welded, or attached by other means known in the art to sides **102**, **104** of the back panel **100**, or the blanket arms **130**, **135** and the back panel **100** may be of a single, continuous piece of material. The positions of the blanket arms **130**, **135** may be reversed in any embodiment of the present invention without impairing the utility of the invention.

[0032] In this preferred embodiment of the present invention, the lower edge **131** of the short blanket arm **130** tapers at a more acute angle with respect to the back panel **100** than the upper edge **132** of the short blanket arm **130**, so that the first end point

133 is horizontally aligned with the center of the infant's torso. Also, the lower edge **131** of the short blanket arm **130** may curve toward the interior of the arm, eliminating excess material that might bunch and place unwanted pressure on the leg pouch **110**. The short blanket arm **130** therefore wraps smoothly and securely around the infant's torso without interfering with leg movement.

[0033] The upper edge **137** and the lower edge **136** of the long blanket arm **135** taper at approximately the same angle with respect to the back panel **100**, so that the second end point **138** is horizontally aligned with the child's navel. Therefore, when an infant is laid on her back upon the back panel **100** with the tops of her shoulders approximately even with the upper edge **106** of the back panel **100**, a straight line between the first end point **133** and the second end point **138** of the extended blanket arms **130**, **135** would pass slightly above the infant's navel. In other embodiments of the present invention the upper and lower tapers of the blanket arms **130**, **135** may be changed as necessary to effect desired pressure distributions.

[0034] The leg pouch **110** is formed from a roughly rectangular piece of fabric that is sewn to the back panel **100** along a first edge **112**, a second edge **114**, and a bottom edge **118**. A typical leg pouch measures approximately 25 cm wide by 30 cm long. The bottom edge **118** of the leg pouch **110** is sewn to the lower edge (not visible) of the back panel **100**, leaving the top edge **116** of the leg pouch **110** open. Alternatively, the leg pouch **110** may be an extension of the lower edge of the back panel **100** folded upward and sewn along its vertical edges **112**, **114**. The vertical edges **112**, **114** may also curve inward and outward to form an hourglass profile, allowing somewhat greater restriction of the infant's legs.

[0035] The arms restraints **120**, **125** are in a preferred embodiment tapered flaps attached to the back panel **100** at seams **121**, **126** that lie beneath and parallel to an infant's arms. A typical seam is about 30 cm long. Each arm restraint **120**, **125** tapers to a lobe **122**, **127** and is positioned so that it may be wrapped inward around an infant's adjacent arm. A typical arm restraint measures about 25 to 30 cm from a seam **121**, **126** to the end of a lobe **122**, **127**. The downwardly-tapering lobes **122**, **127** relieve pressure on the infant's shoulders while providing an easily-used means for securing her arms. The lobe shapes minimize fabric bunching and optimize pressure

distribution, but the arm restraints **120**, **125** may also be triangular, rectangular, or any of a variety of other shapes as desired.

[0036] It should be noted that some of the benefits of the present invention may be obtained with a simplified version consisting only of the back panel **100** and tapered long blanket arm **135**. The dimensions of the back panel **100** and the taper of the long blanket arm **135** allow a more complete wrap and better pressure distribution than does the traditional colic band. However, addition of the leg pouch **110** protects the infant's feet, simplifies positioning of the infant, and improves containment of the infant's legs. Addition of the arm restraints **120**, **125** allows a caregiver to quickly secure an infant's arms close and parallel to the infant's torso. Addition of the short blanket arm **130** allows a caregiver to quickly secure the top edge **116** of the leg pouch **110** and the infant so that the long blanket arm **135** may be easily and carefully wrapped to obtain exactly the desired pressure distribution.

[0037] Figures 2A through 2D illustrate a preferred method for employing the present invention. Fig. 2A shows an infant lying on the back panel (not visible) with her shoulders aligned with the upper edge **106** of the back panel, her arms along her sides, and her legs in the leg pouch **110**.

[0038] Fig. 2B shows how the arm restraints **120**, **125** are each wrapped around the outside of an adjacent arm, then inwardly so that the arm restraint lobes **122**, **127** can be tucked between the infant's arms and torso, thereby holding the infant's arms in an optimum position while subsequent steps are performed.

[0039] Fig. 2C shows how the short blanket arm **130** is wrapped over and across the infant and secured by tucking the first end point **133** between the infant's torso and the proximate arm restraint **125** and armpit, securing both the top edge (not visible) of the leg pouch **110** and the infant.

[0040] Finally, Fig. 2D shows how the long blanket arm **135** is wrapped over the infant, then repeatedly around the infant until the second end point (not visible) is reached. The caregiver adjusts the tension on the long blanket arm **135** as it is wrapped to obtain the desired pressure on the infant, with the taper of the long blanket

arm 135 tending to concentrate increased pressure under the regions wrapped with the most layers. The second end point 138 may be secured by tucking it under a layer of the long blanket arm 135, or by a hook-and-loop or other fastener as is known in the art.

[0041] Fig. 3 shows an alternate embodiment of the present invention in which the top edge 316 of the leg pouch 310 arcs upward. The extra fabric allows the leg pouch 310 to be better secured by the short blanket arm 330. Fig. 3 also shows an optional hook-and-loop fastener 350 attached to the inner end of the long blanket arm 335 near the second end point 338.

[0042] Fig. 4 shows another embodiment of the present invention in which the lower portion of the leg pouch 410 is divided into a right leg pouch 411 and a left leg pouch 413, with a gap 415 between to accommodate the buckle of a child's car seat. Fig. 4 also shows a variation on the blanket arm 430, 435 tapers, where the upper edges 432, 437 have very slight tapers and the lower edges 431, 436 have more pronounced tapers, shifting the end points 433, 438 and the corresponding area of maximum pressure upward. This and other variations may be combined with other feature variations described herein.

[0043] Fig. 5 shows another embodiment of the present invention in which an arm pouch 540 is sewn to the short blanket arm 530 along a side seam 542; to the short blanket arm 530, back panel 500, and long blanket arm 535 along a bottom seam 543; and to the long blanket arm 535 along another side seam 544. The top edge 541 of the arm pouch 540 is left open and is aligned with and slightly below the upper edge 506 of the back panel 500. In use, an infant's arms are inserted into the arm pouch 540 as the infant is laid upon the pouch, then the blanket arms 530, 535 are wrapped in the usual fashion.

[0044] Fig. 6 shows another embodiment of the present invention in which an arm restraint band 640 is sewn to the short blanket arm 630 along a seam 642; to the back panel 600 along a center seam 643; and to the long blanket arm 635 along another seam 644. In use, an infant's arms are inserted under the arm restraint band 640 on

either side of the center seam 643 as the infant is laid upon the band, then the blanket arms 630, 635 are wrapped in the usual fashion.

[0045] Fig. 7 shows an embodiment of the present invention with separate arm pouches. A right arm pouch 745 is sewn to the short blanket arm 730 and the back panel 700, leaving open an upper edge 747. A left arm pouch 746 is sewn to the long blanket arm 735 and the back panel 700, leaving open an upper edge 748. In use, each of an infant's arms is inserted into an adjacent arm pouch 745, 746 as the infant is laid upon the back panel 700, then the blanket arms 730, 735 are wrapped in the usual fashion. Fig. 8 shows an embodiment of the present invention substantially the same as that shown in Fig. 7, but with larger arm pouches 845, 846.

[0046] The principles, embodiments, and modes of operation of the present invention have been set forth in the foregoing specification. The embodiments disclosed herein should be interpreted as illustrating the present invention and not as restricting it. The foregoing disclosure is not intended to limit the range of equivalent structure available to a person of ordinary skill in the art in any way, but rather to expand the range of equivalent structures in ways not previously contemplated. Numerous variations and changes can be made to the foregoing illustrative embodiments without departing from the scope and spirit of the present invention.